MODIS Technical Team Meeting
October 4, 2001
Building 33, Room E125
3:00 P.M.

Vince Salomonson chaired the meeting. Present were Bob Murphy, Ed Masuoka, Dorothy Hall, Wayne Esaias, Eric Vermote, Michael King, Jack Xiong, and Sol Broder, with Rebecca Lindsey taking the minutes.

1.0 Upcoming Events

- MODIS Science Team Meeting Tentative: December 17-19, 2001
  BWI Marriott

2.0 Meeting Minutes

2.1 Instrument Update
Xiong reported that PFM is still operating OK on the A-side, as far as MCST can tell. The problem with data dropouts that Bob Evans raised at previous meetings is likely due to Direct Broadcast software.

FM1 has experienced an A-side cold start problem in thermal vacuum testing. Another issue was that FM1 SRCA cross-talk tests showed that the signal is 1/3 of its expected value, but spectral and radiometric values are within 10% of their expected values.

Post meeting notes.
MCST has discussed this with SBRS technical staff a number of times and has confirmed MCST's results. SBRS has done a number of tests and Roger Drake called MCST to report that they have identified the cause of this problem. They know from the spectral and radiometric tests that both SRCA and the slits are functioning normally. The small signal was due to an SRCA fold mirror offset (not correctly positioned/aligned with the slit during the cross-talk test). This effectively made the slit narrower, thus smaller signal. By properly adjusting the mirror offset (step motor controlled), the expected signal level can be obtained. A new test has been performed with proper mirror and slit alignment, and the test data are on their way to MCST for detailed analysis.

Xiong also provided a post-meeting report on the status of several detectors on FM1. Currently Band 27 (one detector) space view DN is near zero. DN_SV counts of several other detectors in the thermal emissive PV bands are also very low. If DN_SV is 0, then instrument background subtraction is not reliable since MCST won't know if it is below zero and by how much (DN range is from 0 to 4095).

(1) To avoid this, they can change the numbers (say add 100 DN) in one of the instrument flight SW LUTs. This directly raises the instrument background counts. Normally this may lower the saturation level by 100 counts. Since in estimating the T_sat, they have already used a normal non-zero DN_SV (300 DN or so), this change will not cause any problem, especially for the LWIR bands (Bands 27-30).

(2) A different approach is to reduce the detectors' gains by a small amount (3-5%). Then the DCR (DC restore) function will effectively raise the background counts. This might be a concern for Miami since the detectors' gain change may affect their normalization parameters.

MCST has discussed this with SBRS and will use the first approach so that the higher level product (algorithms) will not be impacted. They will only make changes to the thermal emissive PV bands. There will be no impact to any reflective solar bands and thermal PC bands.

Esaias commented that there is very little mirror-side difference on FM1, and Xiong indicated that there are also stable gains. He added that MCST would be adjusting Band 5 before launch, perhaps by 25%. Aqua launch is still planned for no earlier than March 24.

2.2 Data Processing

Kempler reported that Nazmi El Saleous had put together a list of the problems that have hampered forward processing. He will forward this list to interested parties. One significant problem is not having all the data from EDOS. There are holes and gaps in the data, and the DAAC has experienced some down time. Masuoka commented that it just takes time to close EDOS holes when we are almost keeping current.

Salomonson said there had been discussion that perhaps our criteria for what MODAPS has to have to close a day is too strict. One suggestion from the PIP was that if MODAPS is, say 14 or so days down, and they have 85% or better coverage, that they close the day and move on. Every 1% of missing data is approximately 3 granules. Vermote wondered If there would be any chance for a special request for processing if they ended up skipping too much. Salomonson said possibly, but that the missing data wouldn't be part of the 8-day composite in that case. It seems that some further thinking needs to be devoted to the criteria for how much data can be missing and elect to proceed on any given data day. Further discussion is warranted.

Kempler showed a chart of the work done by Gary Alcott, who cleaned up the data for reprocessing (November 2000) and for starting July 2 forward. Those time periods cleaned up well as far as missing data. But they weren't prepared for starting so close to the leading edge of the forward stream (i.e. mid-September when they began). In addition, production was slowed by a high-priority, MCST special request. Finally, there was DAAC down time and also a MOSS 5 test.

Kempler said that he and Alcott have talked about getting back on top of EDOS data delivery and being more careful about filling holes, like they were at the first of the year. Those regular meetings slipped because the DAAC wasn't trying to remain current. Kempler reported that Alcott's contact at EDOS agreed that we should get back on that track, where we ask for reorder right away. Kempler said he would like to think we could get production caught back up.

Esaias said that if we get caught up, things would only run smoothly until the instrument hiccups. If we go the path of staying up close, to real time and then we have to recalibrate, everything comes to a halt. This will always be a problem for oceans. Oceans hopes to have the new Oceans LUTs in a week. Masuoka is holding Oceans processing until then. The current strategy of having collection 3 data coming out of the operational production system is very sensitive to hiccups.

Salomonson asked what the alternative was in his mind. Esaias said the alternative would be to produce quick and dirty real time products, and then to concentrate on reprocessing to get the contiguous, collection 3 products. He did not think we should commit to having provisional products on an operational basis in near real time. Salomonson said he has considered modifying the strategy so that we would not try to be current, and instead to focus on November 2000-February 2001, and then July-August 2001, and simply remain about three month behind. He said that Vermote, however, had protested that it would look bad to be that far behind.

Again, this issue requires further thought. At the present time the intent is to stick to the present plan; i.e., keep going with forward processing/staying "current" and continue with reprocessing of November and December 2000, followed by July through early September 2001, and then go to January and February 2001. The goal should be to have a "continuous year" (of course missing June 15 through July 2, 2001 due to the PFM being inoperative) by the end of 2001.

Masuoka said that one alternative that would allow us to remain relatively current, and also to accommodate Oceans' need for more time to respond to instrument changes would be to give the DAAC a greater capacity to push data to MODAPS. That way MODAPS could receive a second push for Oceans, e.g., if they were behind, without simultaneously slowing current DAAC product. He indicated that Mike Moore is looking at augmentation of their pushing capacity.

Esaias commented that they often feel irresponsible about going forward, knowing that the data will not meet our expectations. He pointed out that focusing on reprocessing would still result in good collection three data entering the DAAC at a rate of 2x. The number of products would actually be greater than what is currently being placed there.

Salomonson asked Kempler to take a hard look at partial decoupling of the Ocean string.

Murphy asked how much data would have to be processed twice if Atmosphere and Land production went on while Oceans was held back. Kempler said none at the DAAC, but that MODAPS would have to ingest data more than once. Masuoka said that MODAPS would have to re-ingest all of the L1b, 1 km data. Kempler asked what time period they should focus on if they were going to do this. Esaias said January.

Masuoka pointed out that going back to January is a whole different issue. Going back to January would mean processing data that hadn't already been processed, essentially having two separate reprocessing strings going. He said what he had been talking about

was simply having the DAAC re-push the already-processed L1B whenever Oceans was ready to go forward. Kempler said he would look into the possibility.

Esaias stated that the delivery of their new LUTs was contingent on getting MOBY data for calibration. The summer data have a lot of glint, and once they screen for glint and clouds, there are few useable granules left. They need about 20 data points, and they are coming in slow.

Salomonson said that one lesson we may learn is that that we have let the science team "free-form" as far as algorithm changes go, and the data system has had to respond. It's possible that now that we are in production in an operational sense, we might need a bit more discipline. Esaias said that this is where the dilemma of having near real time production and climate quality data sets are not compatible goals.

Salomonson summarized that we a bit behind schedule if we were intending to be done by mid-November. Masuoka said that is because our assumption about 1x forward has not been met. Kempler thinks they are about a week behind schedule.

Masuoka reported that MODAPS has closed through 11/24/00. Dr. Wan has given permission to skip his product over a day that might have missing data, which will help us. The forward stream has many holes, and they have days that can't be closed yet. He reported that for Oceans, they are waiting on a new PGE coming in, but that hasn't impacted processing, because other things are holding them up. They ran a test with Linux machines, and they worked. They are doing a day and a half in a day. The bottleneck is the file system. They are going to ask Dolly Perkins for priority for establishing some of their power.

Salomonson commented that he was pleased to see progress was being made on the code for the 5 km by 5 km browse. Kempler thought it would be ready soon. They will then begin producing and archiving it like an official product. King commented that the product would be very valuable.

2.3 Cryosphere Update

Hall reported that they have two samples of their 5 km global snow product on their web site. Users can download either flat binary of HDF. They have 11 eight-day global composites that they are working on getting up in the next couple weeks. These are the 5 km CMG.

2.4 Land Update

Vermote reported that the thermal leak correction test is done, looking at before and after the correction, and he gave a report to Xiong. He looked at vegetation, water, and cloud, and saw a good result over vegetation. Over water, the sub-frame difference after thermal leak correction is reduced, but he thinks it could be improved still. Over cloud, there was sub-frame difference on band 5 before, but after correction it disappeared. Band 5 looks better than before. He emphasized that we do need the corrections. Also, on band 5, one detector is out of family. His next analysis will check Itwk/Vdet settings.

2.5 Oceans Update
Esaias reported that their QA web site is getting a lot of attention, and is being improved. Users can over lay quality levels on gifs and get time series. They are adding the productivity products. They were allowing downloading of means of each parameter, and now users can get quality flags, too. They have a meeting with DAAC to discuss how to put hooks in so that their page links to ordering at Terra WHOM. Esaias indicated he was going to be meeting with the new ocean color program manager, Chuck Trees. He has impressed on me the need to get our data series table up-to-date with provisional/beta/etc. So he is working on delivering that to King.

2.6 General Discussion
Salomonson reported that Steve Dacey, who is now serving as an Aqua outreach person, wants to come around and do interviews with MODIS scientists to talk about Aqua science and the questions answered by the mission. MODIS Discipline leaders may be contacted.

Masuoka reported that MODAPS has been asked to get a security audit, which Paul Arnold will come to do with us. There will be a penetration test and interviews. Esaias advised that they should exercise caution, and that it might be good to tell them to time the test at the end of a completed week.

Salomonson reported that the software usage agreement is about to go up on Pat Coronado's Direct Broadcast web site. They will do a test with providing the surface reflectance product. They hope to get users to solve problems using information provided on the web site, so that minimal human help is needed.

Salomonson commented that there might be a data products review like the one last year. There should be a lot of new, good stuff, so people should be prepared for this review.

With respect to issuing a press release on the Collection 3, it was suggested that it would be a good idea to put an article in the EOS transactions newsletter. He indicated he thought it might be better to focus on several of the great products we have, and then add that we have three months of Collection 3 data. Esaias added that they have received feedback from a number of researchers who are really being able to use the Collection 3 consistent data, including NOAA and SeaWiFS.

2.7 NOAA-NESDIS Update (provided via email by Bruce Ramsay.)
The initial NOAA-NASA MODIS Land Rapid Response system meeting is planned for 1:00 - 3:00 p.m., Thursday, October 18, 2001, in Room E125, Building 33, NASA/GSFC. Anticipated attendees are below.

NOAA/NESDIS:	NASA-UMD:
Rob Fennimore, OSDPD	Jack Descloitres
Levin Lauritson, OSDPD	Louis Giglio
Gene Legg, OSDPD	Chris Justice

Donna McNamara, OSDPD	John Owens
Bruce Ramsay, ORA	Rob Sohlberg

The preliminary agenda follows.

1. Summary of current NOAA MODIS data feed and product generation: lessons learned, planned and possible improvements - Gene
2. NOAA's current plans for a MODIS Fire product and interest in the RR system - Bruce;
3. Goals of the MODIS RR System - Chris;
4. RR System Design, Components, Development and Evolution- Jack/John;
5. Relationship between RR and DB - Jack;
6. Current and Planned RR Products and relation to MODIS Standard products - Chris/Louis;
7. RR and relationship to MODIS Validation - Chris;
8. Cost of the RR system to date
9. Current development schedule
10. Possible options for collaboration

3.0 Action Items

3.1 Discipline leads to meet to resolve the issue of beta-release code and science-quality code, and what we need to say about it.

Status: Open.

3.2 Technical team to discuss further the issue of predicted ephemeris data and how to improve it.

Status: Open.